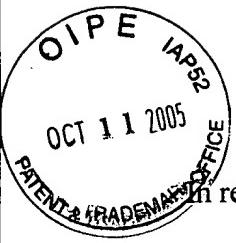AF-ZfW

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No: A8492

Melvin Richard ZIMOWSKI

Appln. No.: 09/602,412

Group Art Unit: 2141

Confirmation No.: 9095

Examiner: Quang N. NGUYEN

Filed: June 23, 2000

For: TECHNIQUE FOR MAINTAINING AND MANAGING DYNAMIC WEB PAGES
       STORED IN A SYSTEM CACHE AND REFERENCED OBJECTS CACHED IN
       OTHER DATA STORES

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. Please charge the statutory fee of
$500.00 to Deposit Account No. 19-4880. The USPTO is directed and authorized to charge all
required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880.
Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is
attached.

10/13/2005 MWOLDGE1 00000002 194880   09602412

01 FC:1402   500.00 DA

Respectfully submitted,

Nataliya Dvorson
Registration No. 56,616

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: October 11, 2005

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of   Docket No: A8492

Melvin Richard ZIMOWSKI

Appln. No.: 09/602,412   Group Art Unit: 2141

Confirmation No.: 9095   Examiner: Quang N. NGUYEN

Filed: June 23, 2000

For: TECHNIQUE FOR MAINTAINING AND MANAGING DYNAMIC WEB PAGES
        STORED IN A SYSTEM CACHE AND REFERENCED OBJECTS CACHED IN
        OTHER DATA STORES

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

Table of Contents

I.   REAL PARTY IN INTEREST

The real party in interest in this appeal is International Business Machines Corporation

("IBM") of Armonk, New York, by virtue of an assignment executed by Melvin Richard

Zimowski (Appellant, hereinafter), recorded by the Assignment Branch of the U.S. Patent and

Trademark Office on June 23, 2000 (at Reel 010934, Frame 0557).

II.   RELATED APPEALS AND INTERFERENCES

To the knowledge and belief of Appellant, Appellant's legal representative or the

assignee, there are no other appeals or interferences before the Board of Appeals and

Interferences that will directly affect or be affected by, or have a bearing on, the Board's decision

in the instant Appeal.

III.   STATUS OF CLAIMS

Claims 1-39 are all the claims pending in the application, each of which stand rejected,

and are subject of this appeal. A copy of the claims on appeal is set forth in an attached

Appendix.

IV.   STATUS OF AMENDMENTS

With the filing of this Brief, all Amendments have been entered and considered by the Examiner.

The application was originally filed with claims 1-36.

Appellant filed an Amendment under 37 C.F.R. § 1.111 on October 1, 2003, in response to the Office Action mailed July 14, 2003, in which claims 1, 13, 23, and 25 were amended and claims 37-39 were added.

Appellant filed a Response under 37 C.F.R. § 1.111 on January 29, 2004, in response to the Office Action mailed October 30, 2003. No amendments to the claims were made.

Appellant filed a Request for Reconsideration under 37 C.F.R. § 1.116 on April 19, 2004 in response to the Final Office Action dated February 19, 2004. There were no amendments to the claims. According to the Advisory Action mailed May 11, 2004, the Examiner maintained the rejection of claims 1-39. On May 19, 2004, Appellant filed a Notice of Appeal to appeal the final rejection of claims 1-39.

Appellant filed a Brief on Appeal to appeal the rejection of claims 1-39 on August 19, 2004. In response, the Examiner issued a new Office Action mailed on January 13, 2005.

Appellant filed a Request for Reconsideration under 37 C.F.R. § 1.111 on April 13, 2005, in response to the Office Action mailed January 13, 2005. No amendments to the claims were made.

Appellant filed a Response under 37 C.F.R. § 1.116 on June 11, 2005 in response to the Final Office Action dated May 10, 2005. There were no amendments to the claims. According

to the Advisory action mailed July 22, 2005, the Examiner maintained the rejection of claims 1-

39. On August 10, 2005, Appellant reinstated the Appeal by filing a Notice of Appeal.

The Appendix included with this Brief, sets forth the claims involved in the appeal, and

reflects all the claim changes made during the prosecution of the above-described application.

V.   SUMMARY OF THE CLAIMED SUBJECT MATTER

The application describes methods, apparatuses, and articles of manufacture for managing dynamic web pages and objects referenced by the web pages.

In the Internet environment, there are two type of web pages, static web pages and dynamic web pages. Static web pages are pre-generated before a client request for these pages is issued. Dynamic pages, on the other hand, are generated at the time of a client's request. The data for the dynamic web page is obtained dynamically at the web servers. In conventional systems, web servers often cache the dynamic web pages for easier access. Both types of web pages can reference other objects using hypertext links, for example.

When web pages are generated dynamically it is not possible to predetermine the objects that will be referenced within those web pages that use hypertext links to link to objects. In conventional systems incomplete web pages can be displayed at the web browser since such conventional systems do not ensure that objects referenced by a web page are present when serving the page. *See* page 2 of the specification. Accordingly, there is a need to maintain and automatically manage cached dynamic web pages and the objects referenced by those web pages.

The present application describes solutions to that problem by using a computer program that determines that a web page should be cached and that the web page references other objects. The computer program instructs the computer to store those referenced objects in one or more data stores and caches the corresponding web page in the cache. The program automatically manages the cached web pages and those stored referenced objects to ensure the display of a complete web page.

An exemplary use of the techniques described in the application is set forth at page 7 of the specification. In this example, when a web page is cached, all the objects referenced in the web page are stored in a data store. In addition, a web page is not returned to a user's browser until all referenced objects in the web page are successfully placed in the referenced object data store. When a web page is removed from the dynamic web page cache, any objects referenced by that web page also are removed from the data store. When an object is removed from the referenced object data store, the web page that references that object also is removed from the dynamic web page cache and any other objects referenced by that web page are removed from the referenced object data store. The cached web page is removed from the cache before any dependent objects are removed from the referenced object data store. In this way an incomplete web page stored in the cache is not served to a user. *See* page 11 of the specification.

Referring to Fig. 2, an exemplary flow chart illustrates the operations performed in managing the contents of the dynamic web page system cache and related data stores that contain the objects the cached web pages reference, to ensure that only complete web pages are displayed at a user's browser. At block 200, a request is made to generate a dynamic web page. The system, in accordance with this exemplary embodiment, retrieves data responsive to the request and places that data in a dynamically generated web page, as represented by block 202. The retrieved data may be linked to other stored data. Block 204 represents caching the retrieved data and the linked data and block 206 represents the management of the cached data and related data stores. *See* page 23 of the specification.

VI.   GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1)   Whether claims 1, 4, 13, 16, 25, 28, and 37-39 are anticipated under 35 U.S.C. §

102(e) by U.S. Patent No. 6,345,292 to Daugherty et al. (hereinafter "Daugherty").

2)   Whether claims 2, 3, 14, 15, 26, and 27 are unpatentable under 35 U.S.C. § 103(a)

over Daugherty in view of U.S. Patent No. 6,542,967 to Major (hereinafter "Major").

3)   Whether claims 5, 6, 17, 18, 29, and 30 are unpatentable under 35 U.S.C. § 103(a)

over Daugherty.

4)   Whether claims 7-12, 19-24, 31-36 are unpatentable under 35 U.S.C. § 103(a)

over Daugherty in view of U.S. Patent No. 6,298,373 to Burns et al. (hereinafter "Burns").

VII.   ARGUMENT

Appellant respectfully requests the Board to reverse the Examiner's final rejections of the claims pending in the application for at least the following reasons.

A.   The § 102(e) Rejection under Daugherty

The Examiner rejects claim 1 and all of the other independent claims (i.e., claims 13 and 25) as being anticipated by Daugherty.

Claim 1, for example, recites the following features:

i) determining that a web page is to be cached, wherein the web page references other objects;

ii) storing the referenced objects in one or more data stores;

iii) caching the web page in a cache; and

iv) automatically managing the cached web page and the referenced objects to ensure the display of a complete web page.

It is respectfully submitted that Daugherty does not teach all the limitations of the independent claims and therefore does not anticipate those claims. More particularly, Daugherty does not disclose the web page, much less a web page that references other objects, or automatically managing the cached web page and the referenced objects to ensure the display of a complete web page.

1.   The Daugherty Reference

Daugherty discloses web page rendering architecture for personalizing web pages based on user preferences. Daugherty's system includes a first server, a first-level cache, a second server, a second-level cache and one or more provider objects. The first server receives a request

from a requestor for a web page. The web page has a number of clips in an arrangement. The

server determines the clips and the arrangement based on a key. The first-level cache stores the

clips from which the first server is to assemble the web page. The second server populates the

first-level cache with any of the clips not yet stored there. The second-level cache stores the clips

from which the second server is to populate the first-level cache. The provider object or objects

populate the second-level cache with any of the clips not yet stored there (*see* Abstract and col.

5, lines 2 to 13; Fig. 2).

Specifically, Daugherty discloses a user browser requesting a web page identified by a

Universal Resource Locator (URL) address. The web page is made up of a number of

HyperText Markup Language (HTML) clips, in a given arrangement. That is, the clips are used

to assemble the web page. The first server determines the clips and the arrangement for the web

page based on a personalization key, which is derived by the server from a local file such as a

cookie file stored at the requestor and the requested web page (Fig. 2; col. 5, lines 14 to 27 and

col. 6, lines 14 to 16).

In Daugherty, the server has an Internet Server Application Programming Interface

(ISAPI), which assembles HTML clips based on the web page requested and the personalization

key, (*i.e.*, determines the necessary HTML clips specified by the personalization key). As the

ISAPI receives the HTML clips, or when all the HTML clips have been retrieved, the server

returns them to the user browser for display thereon. The server may also return the completed

web page (Fig. 2; col. 5, lines 29 to 40).

To personalize a web page, Daugherty discloses that, depending on the URL address of

the web page requested, the ISAPI 106 references a data structure in extensible Markup

11

Language (XML) format that specifies different HTML clips for that web page. Furthermore,

the cookie file stored by the user browser determines which of those HTML clips are to be used

to return to the user browser. The XML data structures may be cached (col. 5, lines 41 to 48).

Therefore, in Daugherty, personalization data is retrieved from the cookie file that

enables the ISAPI 106 to retrieve the user's personalization data. The personalization data is

used to determine which categories and clips are shown on the custom page being built, the order

in which categories and clips are displayed, and the contents of those clips that are personalized.

Based on the cache-key built using a parameter description contained in the XML data structure

(the specific XML data structure used based on the web page URL), and the personalization data,

the clips are requested from the first-level cache where they are stored. The XML description of

the web pages makes the architecture of the invention in one embodiment easily extensible. The

XML describes parameters and how to look them up for a given user request. This information

is passed to one or more caches and in one embodiment to a provider object and possibly

eventually to a provider object, which contain preformed HTML clips corresponding to the cache

request. That is, the caches contain pre-formed HTML clips, while the provider objects generate

these clips from HTML templates and raw data. Thus, changes in the XML allow the system to

easily add or remove content providers, or change the personalization parameters being used for

a given content provider (col. 5, line 49 to col. 6, line 14).

2.   Examiner's Position: Claims 1, 13 and 25

The Examiner, in the final Office Action and in the Advisory Action, takes the position

that Daugherty's disclosure of the XML data structures and HTML clips allegedly correspond to

the web page and the objects, as set forth in the independent claims 1, 13, and 25 (*see* page 3 of

the Final Office Action dated May 10, 2005 and page 2 of the Advisory Action dated July 22,

2005). The Examiner also asserts that the XML data structure references HTML clips (*see* page

3 of the Final Office Action and page 3 of the Advisory Action). The Examiner further asserts

that Daugherty automatically manages the XML data structures and the HTML clips to ensure a

display of the completed web page *Id.*

The rejection should be reversed since the prior art does not support these assertions.

3. Claims 1, 13, and 25 are not anticipated by Daugherty

To anticipate a claim under 35 U.S.C. § 102, Daugherty must teach each and every

element and recitation of the Appellant's claims. Further, Daugherty must teach each element of

the claims in as complete detail as set forth in the claims, *Richardson v. Suzuki Motor Co.*, 868

F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Rejections under 35 U.S.C. § 102 are

proper only when the claimed subject matter is identically disclosed or described in the prior art.

Thus, the reference must clearly and unequivocally disclose every element and recitation of the

claimed invention.

i. *A web page as set forth in claim 1 is different from Daugherty's XML data structure*

The Examiner maintains that "a web page" is an XML data structure, as disclosed in

Daugherty. For support of this position, the Examiner relies on Microsoft Computer Dictionary

(*see* page 8 of the Office Action and page 2 of the Advisory Action). However, the Microsoft

Computer Dictionary does not support the Examiner's position.

As indicated at page 564 in the Microsoft Computer Dictionary, a "web page" is a

document on the World Wide Web. Web page consists of an HTML file, with associated files

for graphics and scripts, in a particular directory on a particular machine (and thus identifiable by

an URL). This definition does not teach or suggest that the web page is an XML data structure.

Accordingly, the Examiner further alleges that a web page may consist of an <u>XML file</u>.

For support of this position the Examiner turns to the definition of XML, which is an extensible

markup language, a condensed form of SGML, *see* page 578 of Microsoft Computer Dictionary.

This, however, still does not support the Examiner's position that <u>an XML data structure</u> is a web

page.

Appellant respectfully submits that even *assuming arguendo* that a web page can be in an

XML format, Daugherty's XML data structure does not disclose a web page, as set forth in claim

1.

As is visible from the description above, Daugherty recites an XML <u>data structure</u> and

<u>not an XML page</u>. That is, Daugherty discloses "a data structure in extensible Markup Language

(XML) format that specifies different HTML clips for that web page," (col. 5, lines 41 to 45).

Moreover, Daugherty discloses that the <u>XML data structure contains a parameter</u>

<u>description for building a cache-key</u>. Daugherty's cache key contains the following information:

the identification of the provider, and name-value pair parameters that communicate sufficient

information to the provider object so that it is able to generate the HTML clip. The XML

description of the web pages allegedly makes Daugherty's architecture easily extensible (col. 5,

lines 49 to col. 6, line 3). "<u>The XML describes parameters and how to look them up for a given</u>

<u>user request</u>" (col. 6, lines 3 and 4). Changes in the XML allegedly allow the system to easily

add or remove content providers, or <u>change the personalization parameters</u> being used for a

given content provider (col. 6, lines 10 to 13).

That is, Daugherty discloses a web page that is displayed and <u>an XML structure that describes parameters</u>. As is clear from the use of the term "web page" and the term "XML structure" in Daugherty, XML structure is different from the web page (see cols. 5 and 6 discussing the web page and the XML structure as being different). In fact, no where Daugherty discloses that the XML structure is the web page that is displayed to the user. Accordingly, in Daugherty's disclosure of the web page distinguishes from the XML data structure. It is respectfully submitted that one of ordinary skill in the art would not confuse the XML data structure disclosed in Daugherty with the web page disclosed therein, at least because Daugherty, the reference relied on by the Examiner, distinguishes between the two.

Moreover, if, as alleged by the Examiner, the XML data structure is the same as a web page, then the cached XML data structures must be automatically managed to ensure <u>a display of a complete XML data structure</u>. Daugherty, however, does not teach or suggest displaying an XML data structure, as <u>this structure describes parameters and how to look them up</u>. Daugherty does not teach or suggest ensuring display of a complete XML data structure.

In short, the Examiner's position that because Daugherty discloses an XML data structure it discloses a web page is not supported by the prior art.

ii. *Daugherty's XML structure does not reference objects*

Next, the Examiner maintains that the "XML data structure references objects for that web page" (*see* page 8 of the Office Action and page 3 of the Advisory Action). For support, the Examiner turns to column 5, lines 41 to 48 of Daugherty, which recite:

> This personalization in one embodiment
> occurs as follows. Depending on the URL
> address of the web page requested, *the ISAPI*
> *106 references a data structure in*

> *extensible Markup Language (XML) format that*
> *specifies different HTML clips* for that web
> page. Furthermore, the cookie file stored by
> *the user browser 100 determines which of*
> *those HTML clips are to be used* to return to
> the user browser 100. The XML data
> structures may be cached, (emphasis added).

That is, as is recited above, it is the ISAPI (Internet Server Application Programming Interface) that

references the XML data structure that **specifies** different HTML clips and the cookies file is being

used to determine which of the HTML clips specified by the user browser to use. In other words,

contrary to the Examiner's allegations, the XML data structure does not reference the HTML clips

for the web page. Instead, in Daugherty, the XML data structure specifies a number of different

HTML clips, some of which are selected for the web page by using a cookie file.

Moreover, Daugherty clearly discloses that "the web page is made up of a number of

HyperText Markup Language (HTML) clips..." (col. 5, lines 16 to 18). That is, in Daugherty, a

web page is <u>composed of</u> the HTML clips. Daugherty fails to teach or suggest the web page

referencing other objects.

In short, Daugherty's XML data structure <u>specifies but does not reference</u> HTML clips.

Moreover, the XML data structure merely specifies various different HTML clips, <u>only some of</u>

<u>which</u> are selected for a web page by using a cookie file (col. 5, lines 42 to 47).

In short, the Examiner's interpretation that the XML data structure references the HTML

clips is not supported by the prior art.

iii. Daugherty fails to teach or suggest ensuring the display of a complete web page

The Examiner alleges that Daugherty discloses "automatically managing the cached web

pages and the referenced objects to ensure the display of a complete web page." Specifically,

the Examiner alleges that "Daugherty teaches once all the HTML clips have been retrieved from one or more data stores (*either retrieved from the first-level cache 110 or from the second-level cache 112*), the server 102 returns them to the browser 100 for display thereon, the server 102 returns the completed web page (Daugherty, C5: L3-7-40)" (*see* page 9 of the Final Office Action and page 3 of the Advisory Action).

First, it is respectfully pointed out that Daugherty draws a distinction between the XML data structure and a web page. If the Examiner alleges that the XML data structure corresponds to the web page claimed in claim 1, then Daugherty must disclose displaying a complete XML data structure, as explained above in § A.3.i. Daugherty, however, only discloses displaying a web page and fails to teach or suggest displaying an XML data structure. In fact, Daugherty discloses that only HTML is displayed (*e.g.* Daugherty discloses that the content providers may have a small well-defined set of XML data files that can be merged into pre-authored HTML fragments, col. 8, lines 60 to 67).

Moreover, Daugherty only discloses that "[a]s it receives the HTML clips, or in another embodiment once all the HTML clips have been retrieved, the server 102 returns them to the user browser 100 for display thereon. "The server 102 may also return the completed web page" (col. 5, lines 36 to 40). That is, as disclosed by Daugherty, the retrieved HTML clips do not ensure a display of a complete web page. Instead, it appears that Daugherty's server 102 could return only the HTML clips to the web browser or, in the alternative, the server 102 may generate the web page 102 using these HTML clips and return the completed web page. In short, Daugherty relates to providing personalized information and fails to teach or suggest ensuring a display of a complete web page.

Furthermore, if the Examiner alleges that the cached XML data structure corresponds to the cached web page, then the Examiner fails to show how Daugherty anticipates "automatically managing the cached web page...to ensure the display of a complete web page". That is, Daugherty does not teach or suggest managing the XML data structure to ensure a complete web page. Daugherty only discloses that the web page may be completed by the server or may be put together by the user browser (col. 5, lines 36 to 40). In short, Daugherty does not disclose ensuring the display of the complete web page.

For at least this reason it is respectfully submitted that the independent claims 1, 13, and 25 are not anticipated. For at least these reasons, the rejection of claims 1, 13, and 25 is improper and should be reversed.

Claims 4, 16, 28, and 37-39 are not anticipated by Daugherty, at least by virtue of their dependency from the independent claims discussed above.

In addition, dependent claim 4 recites: "receiving data and placing the data in a dynamically generated web page, wherein the data is linked to other stored objects." The Examiner alleges that since the web page is made up of a number of HTML clips, one HTML clip is linked to another HTML clip (*see* page 3 of the Final Office Action). However, since the claim language uses two terms, data and stored objects, and not one term, the claim language clearly does not support the Examiner's reading. That is, if the Examiner alleges that the HTML clips are the data, then these same HTML clips cannot be the stored objects.

Moreover, in Daugherty, there is no teaching or suggestion that one HTML clip is linked to another HTML clip. Daugherty discloses that ISAPI determines the necessary HTML clips specified by the personalization key, and as the HTML clips are received, the server returns them

18

to the user browser for display thereon (col. 5, lines 31 to 40). There is no disclosure in

Daugherty of the HTML clips being related or linked in any way. In short, Daugherty does not

teach or suggest HTML clips being linked to other HTML clips.

For at least these additional reasons, claim 4 is not anticipated by Daugherty. There is no

disclosure in Daugherty of the HTML clips being related or linked in any way.

B.   Rejections Under 35 U.S.C. §103 over Daugherty in view of Major

The exemplary deficiencies of Daugherty, as set forth above, are not cured by Major,

either alone or in combination. Consequently, claims 2, 3, 14, 15, 26, and 27 are patentable over

the applied references, at least by virtue of their dependency from the independent claims.

C.   Rejections Under 35 U.S.C. §103 over Daugherty

As explained above, independent claims are not anticipated or obvious over Daugherty.

Consequently, claims 5, 6, 17, 18, 29, and 30 are patentable over Daugherty, at least by virtue of

their dependency from the independent claims.

D.   Rejections Under 35 U.S.C. §103 over Daugherty in view of Burns

The exemplary deficiencies of Daugherty, as set forth above, are not cured by Burns,

either alone or in combination. Consequently, claims 7-12, 19-24, and 31-36 are patentable over

the applied references, at least by virtue of their dependency from the independent claims.

VIII.   CONCLUSION

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted

herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to

Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: October 11, 2005

Nataliya Dvorson
Registration No. 56,616

Attorney Docket No.: A8492

CLAIMS APPENDIX

CLAIMS 1-39 ON APPEAL:

1. A method for managing data stored in a data storage device connected to a computer,

comprising:

determining that a web page is to be cached, wherein the web page references other

objects;

storing the referenced objects in one or more data stores;

caching the web page in a cache; and

automatically managing the cached web page and the referenced objects to ensure the

display of a complete web page.

2. The method of claim 1, further comprising, when one or more of the referenced

objects is deleted, deleting the web page from the cache.

3. The method of claim 1, further comprising, when the web page is deleted from the

cache, deleting the referenced objects.

4. The method of claim 1, further comprising, prior to determining that a web page is to

be cached:

receiving a request to generate a dynamic web page; and

retrieving data and placing the data in a dynamically generated web page, wherein the

data is linked to other stored objects.

5. The method of claim 4, wherein managing the cached web page and referenced objects comprises the steps of:

receiving a request from an administrator to delete the retrieved data based on administrator-provided input; and

deleting the retrieved data based on the administrator-provided input.

6. The method of claim 4, wherein managing the cached data comprises the steps of:

receiving a request from an administrator to delete the linked objects based on an administrator-provided input; and

deleting the linked objects based on the administrator-provided input.

7. The method of claim 1, further comprising, processing a caching directive that specifies whether the web page should be cached.

8. The method of claim 1, further comprising, associating an expiration timestamp with the web page, wherein the expiration timestamp defines a time period in which the cached web page is valid.

9. The method of claim 8, wherein managing the cached web page and referenced objects further comprises automatically deleting the web page and the referenced objects when the expiration timestamp precedes a current timestamp.

10. The method of claim 9, wherein deleting further comprises first, deleting the web page and second, deleting the referenced objects.

11. The method of claim 8, wherein managing the cached web page and referenced objects comprises the steps of:

receiving a request from an administrator to delete all cached web pages according to some administrator-specified selection criteria; and

deleting all cached web pages and referenced objects that satisfy the administrator-specified selection criteria.

12. The method of claim 11, wherein deleting further comprises first, deleting the web page and second, deleting the referenced objects.

13. An apparatus for processing a request that requires the dynamic generation of a web page, the apparatus comprising:

a computer; and

one or more programs, performed by the computer, for determining that a web page is to be cached, wherein the web page references other objects, storing the referenced objects in one or more data stores, caching the web page in a cache, and automatically managing the cached web page and the referenced objects to ensure the display of a complete web page.

14. The apparatus of claim 13, further comprising, when one or more of the referenced objects is deleted, deleting the web page from the cache.

15. The apparatus of claim 13, further comprising, when the web page is deleted from the cache, deleting the referenced objects.

16. The apparatus of claim 13, further comprising, prior to determining that a web page is to be cached, one or more computer programs, performed by the computer, for receiving a request to generate a dynamic web page, and retrieving data and placing the data in a dynamically generated web page, wherein the data is linked to other stored objects.

17. The apparatus of claim 16, wherein managing the cached data comprises one or more computer programs, performed by the computer, for receiving a request from an administrator to delete the retrieved data based on an administrator-provided input, and deleting the retrieved data based on the administrator-provided input.

18. The apparatus of claim 16, wherein managing the cached data comprises one or more computer programs, performed by the computer, for receiving a request from an administrator to delete the linked objects based on a second user provided input, and deleting the linked objects based on the administrator-provided input.

19. The apparatus of claim 13, further comprising one or more computer programs, performed by the computer, for processing a caching directive that specifies whether the web page should be cached.

20. The apparatus of claim 13, further comprising one or more computer programs, performed by the computer, for associating an expiration timestamp with the web page, wherein the expiration timestamp defines a time period in which the cached web page is valid.

21. The apparatus of claim 20, wherein managing the cached web page and referenced objects further comprises one or more computer programs, performed by the computer, for automatically deleting the web page and the referenced objects when the expiration timestamp precedes a current timestamp.

22. The apparatus of claim 21, wherein deleting further comprises one or more computer programs, performed by the computer, for first, deleting the web page and second, deleting the referenced objects.

23. The apparatus of claim 20, wherein managing the web page and referenced objects comprises one or more computer programs, performed by the computer, for receiving a request from an administrator to delete all cached web pages according to some administrator-specified selection criteria, and deleting all cached web pages and referenced objects that satisfy the administrator-specified selection criteria.

24. The apparatus of claim 23, wherein deleting further comprises one or more computer programs, performed by the computer, for first, deleting the web page and second, deleting the referenced objects.

25. An article of manufacture comprising a computer program carrier readable by a computer and embodying one or more instructions executable by the computer to perform method steps for managing data stored in a data storage device connected to a computer, comprising:

. determining that a web page is to be cached, wherein the web page references other objects;

storing the referenced objects in one or more data stores;

caching the web page in a cache; and

automatically managing the cached web page and the referenced objects to ensure the display of a complete Web page.

26. The article of manufacture of claim 25, further comprising, when one or more of the referenced objects is deleted, deleting the web page from the cache.

27. The article of manufacture of claim 25, further comprising, when the web page is deleted, deleting the referenced objects.

28. The article of manufacture of claim 25, further comprising, prior to determining that a web page is to be cached:

receiving a request to generate a dynamic web page; and

retrieving data and placing the data in a dynamically generated web page, wherein the data is linked to other stored objects.

29. The article of manufacture of claim 28, wherein managing the cached web page and referenced objects comprises the steps of:

receiving a request from an administrator to delete the retrieved data based on an administrator-provided input; and

deleting the retrieved data based on the administrator-provided input.

30. The article of manufacture of claim 28, wherein managing the web page and referenced objects comprises the steps of:

receiving a request from an administrator to delete the linked objects based on an administrator-provided input; and

deleting the linked objects based on the administrator-provided input.

31. The article of manufacture of claim 25, further comprising processing a caching directive that specifies whether the web page should be cached.

32. The article of manufacture of claim 25, further comprising associating an expiration timestamp with the web page, wherein the expiration timestamp defines a time period in which the cached web page is valid.

33. The article of manufacture of claim 32, wherein managing the cached web page and referenced objects further comprises automatically deleting the web page and the referenced objects when the expiration timestamp precedes a current timestamp.

34. The article of manufacture of claim 33, wherein deleting further comprises first, deleting the web page and second, deleting the referenced objects.

35. The article of manufacture of claim 32, wherein managing the cached web page and referenced objects comprises the steps of:

receiving a request from an administrator to delete all cached web pages according to some administrator-specified selection criteria; and

deleting all cached web pages and referenced objects that satisfy the administrator-specified selection criteria.

36. The article of manufacture of claim 35, wherein deleting further comprises first, deleting the web page and second, deleting the referenced objects.

37. The method of claim 1, wherein at least one of the referenced objects is not stored in said cache.

38. The apparatus of claim 13, wherein at least one of the referenced objects is not stored in said cache.

39. The article of manufacture of claim 25, wherein at least one of the referenced objects is not stored in said cache.

EVIDENCE APPENDIX:

NONE.

RELATED PROCEEDINGS APPENDIX

NONE.